

REMARKS

The Office Action mailed on May 16, 2005, has been reviewed and the comments of the Patent and Trademark Office have been considered. Prior to this paper, claims 1-46 were pending, with claims 9-11, 21-32, 34, 36, 38, 41-46 being withdrawn from prosecution. By this paper, Applicants do not cancel any claims and add claim 47. Therefore, claims 1-47 are now pending.

Applicants respectfully submit that the present application is in condition for allowance for at least the reasons that follow.

Claim Rejections Under 35 U.S.C. § 103(a)

In the Office Action, claims 1-8, 12-20, 33, 35, 37, 39 and 40 stand rejected under 35 U.S.C. §103 as being obvious in view of EP 0628146 when combined with Krupnik et al. (U.S. Patent No. 6,298,538), while claims 35 and 37 stand rejected under the same statute in view of the combination of EP 0628146 with Krupnik and De Bruyne (U.S. Patent No. 5,088,919). Applicants respectfully traverse the rejection as to the claims above, and submit that these claims are allowable for at least the following reasons.

Applicants rely on MPEP § 2143, which states that:

[t]o establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

It is respectfully submitted that the Office Action has not met any of the first, second and the third criteria of MPEP § 2143.

The References Do Not Suggest All Claim Recitations

As a preliminary matter, Applicants respectfully submit that the scope of claim 1 and the scope of claim 13 (and the claims that respectively depend therefrom) have incorrectly been treated as being the same. This is not the case. Claim 1 utilizes the closed-ended phrase “consisting,” while claim 13 does not. This fact is discussed in greater detail below.

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Even if the first and second requirements of MPEP § 2143 had been satisfied in the Office Action (which they are not, as is explained below) the cited references fail to teach each element of any of the considered claims. For example, independent claims 1 and 13 both recite a burner membrane comprising “a needled fiber web which is compressed to a porosity of between 60% and 95% . . . wherein the fiber web is needled in one step and compressed in a different step.” (Emphasis added.) That is, the needling occurs before the compression step, else the “needled fiber web” could not be compressed. Moreover, the compression of the needled fiber web results in the claimed porosity.

The Office Action asserts that EP ’146 teaches “a compressed web of stainless steel fibers. The web having a porosity of about 78-88 percent,” and recognizes that EP ’146 does not teach needling. (Emphasis added.) The Office Action relies on Krupnik to remedy this deficiency, asserting that “it would have been obvious . . . to have needled the web of EP ’146, in order to produce a stronger fabric.” (Emphasis added.) However, even if Krupnik’s needling were utilized on the web of EP ’416, the above features of the claims under consideration would still not be achieved. First, needling the web would thus result in needling after compression – not before compression, as is required by the claims. Second, it is not clear that needling the membrane of EP ’416, either *before or after* compression, would result in a membrane having the claimed porosity, and no evidence has been proffered to the contrary. That is, needling will skew the porosity away from the ranges taught in EP ’416, and thus away from the claimed ranges. (This is even more so in the case of claim 2, which teaches a narrower porosity range.) Indeed, Krupnik is completely silent in regard to a teaching of porosity. On the other hand, EP ’146 teaches a plate made from a *sintered* metal

fiber web. Each example provided in EP '416 of a burner membrane is explicitly sintered. Further, each example provides that the porosity is achieved by compression *and* sintering.

Conversely, Applicants' claims are directed towards a *needled* fiber web that is compressed a certain amount so that the needled fiber web achieves a desired porosity. This is not found in the cited references. Applicants submit that the process of needling alters the porosity of the material, just as compression alters the porosity of the material, and thus needling the web as proffered in the Office Action changes the porosity of the material from the ranges cited in the Office Action. Thus, another recitation is not present even after combination.

Third, the limitation "a needled fiber web which is compressed to a porosity of between 60% and 95%" is not two separate limitations (*i.e.* a needled fiber web which is compressed, and a fiber web that has a porosity of 60-95%), it is one indivisible limitation, thus it can only be met by one reference, and no single reference teaches these features.

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As noted above, claim 1 recites a burner "membrane comprising at least one layer consisting of a needled fiber web which has been compressed to a porosity of between 60% and 95%." (Emphasis added.) That is, one layer of the membrane is formed only by a needled fiber web compressed as claimed. In contrast, the proffered combination results, assuming *arguendo*, in, at most, a sintered needled web. (As will be discussed in greater detail below, each and every example of a membrane in EP '146 is sintered.) Thus, the resulting web contains additional binding features not recited in claim 1 and its dependencies, and, therefore, claim 1 is allowable for additional reasons.

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To arrive at the recitations regarding the weight of the fiber web in many of the rejected dependent claims, the Office Action asserts that routine experimentation would be used. Applicants respectfully submit that this is not the case. MPEP § 2144.05 II, entitled "Optimization of Ranges," does indeed permit the rejection of claims as being obvious based

on routine experimentation. However, Applicants point to MPEP § 2144.05 II(B), which states that

Only Result-effective Variables Can Be Optimized. A particular parameter must *first* be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonine* (citations omitted). (The claimed wastewater treatment device had a tank volume to contractor area of 0.12 gal./sq. ft. The prior art did not recognize that treatment capacity is a function of the tank volume to contractor ratio, and therefore the parameter optimized was not recognized in the art to be a result-effective variable.)

(Emphasis added, citations omitted.) As in *In re Antonine*, it is respectfully submitted that no evidence has been proffered that the prior art recognizes the connection between the recited weights and the advantages of the present invention, and certainly none that shows that varying the weights produces a recognized result. (In fact, the Office Action does not even identify how the weights are “directly related to strength, thickness and porosity of the final product.” Indeed, Applicants respectfully submit that the use of compression, needling, sintering, *etc.*, frustrates a “direct” relation to these properties.) In sum, Applicants respectfully submit that since no evidence has been proffered that weight has previously been recognized as a result-effective variable, based on case law and the MPEP, the rejected dependent claims are not obvious in view of optimization through routine experimentation.

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In sum, the proffered combination fails to meet the third requirement of MPEP § 2143 for at least three reasons, and thus independent claims 1 and 13 are allowable, along with the claims that depend therefrom. This is also the case with claims 35 and 37, at least because De Bruyne does not remedy the above identified deficiencies with EP '146 and Krupnik.

Lack of Suggestion to Modify the Reference

The Office Action does not sufficiently identify where the prior art suggests the desirability of the claimed invention. MPEP § 2143.01, entitled *Suggestion or Motivation to Modify the References*, states that the “prior art *must* suggest the desirability of the claimed invention.” (emphasis added; citations omitted) It further states that obviousness

can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. ‘The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art.’

(Citations omitted.)

Applicants respectfully submit that the Krupnik reference teaches away from use as a burner membrane. Krupnik prominently teaches that it is important that the fibers retain the oil on their outer surfaces from the shaving process, and that, if the oil is not retained, oil can be added directly to the mass of loose fibers after the shaving process. (Column 3, lines 8-15.) It is well known in the art that the presence of oil or other organic material on a burner membrane can cause early rupture of the membrane due to carbon precipitation. Carbon atoms from the burned organic material enter into the molecular structure of the alloy, and locally change the alloy balance. Usually, the carbon precipitation makes the alloy less resistant to oxidation under higher temperatures. Thus, one of ordinary skill in the art seeking a burner membrane would not seek to combine Krupnik with the other references. (It is noted that the presence of organic material is difficult if not impossible to eliminate in the art, and the presence of some organic material in or on the burner membrane is expected. Applicants simply note that one of ordinary skill in the art would not find motivation use the teachings of Krupnik in combination with the other references due to the importance that Krupnik places on oil retention.)

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EP '146 also teaches away from the present invention. EP '146 teaches a plate made from a *sintered* metal fiber web. *Each and every* example provided in EP '146 of a burner membrane is explicitly sintered. Further, *each and every* example provides that the porosity of EP '146 is achieved by compression *and* sintering. That is, there is nothing in the reference that suggests the teachings of the reference can be used with a binding method other than sintering. Indeed, one would not need to needle the fiber web, as the fiber web would be bound by the sintering step. That is, the sintering step would completely defeat the purpose of needling the web, and a skilled artisan would not be motivated to do such a thing. Accordingly, EP '146 teaches away from utilizing needling.

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Also, the proposed modification would change the principle of operation of EP '146. MPEP § 2143.01, paragraph 6, states that if “the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.” Here, the principle of operation of EP '146 is to provide a porous metal fiber plate that is bound together by the fusion of the molecules of the metal (*i.e.* sintering.) In contrast, the fiber web as claimed is bound together by the commingling of the fibers (*i.e.* needling). Because the principles of operation are different, it would not have been obvious to modify the EP reference to achieve the present invention.

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Still further, in regards to claim 1, the combination of the references to achieve the given results would not have been obvious for additional reasons. To achieve the results of the claims using the knowledge taught by the references, a person of ordinary skill must first ignore the prominent teachings of EP '146 regarding sintering, and then add the step of needling to EP '146. Applicants submit that such an action would not result from the labor of an ordinary skilled artisan, but from the diligent work of an innovator. Since a reference has not been provided that teaches needling as a suitable, nondetrimental substitute to sintering in

the burner membrane arts, it is not reasonable to presume that the limitations of claim 1 and the claims that depend therefrom would have been obvious to one of ordinary skill in the art knowing the teachings of the cited references.

Lack of a Reasonable Expectation of Success

MPEP § 2143.02 permits references to be modified or combined to reject a claim as obvious only if there is a reasonable expectation of success. There is no evidence in the references, and certainly none identified in the Office Action, that one of ordinary skill in the art would have a reasonable expectation of success in achieving Applicants' invention by combining the references. For example, the references are silent in regard to a teaching that a compressed needled web has the same properties as a sintered web in regard to a web for a burner membrane. (Applicants note that this example is simply a starting point for a showing of a reasonable expectation of success; more would be needed.) Thus, one of ordinary skill in the art would not see the combination of the references as producing a successful burner membrane. Because of this, the second criteria of MPEP § 2143 has not been met in the Office Action, and a *prima facie* case of obviousness has therefore not been established.

Request for Rejoinder of Withdrawn Claims

Claims 9-11, 21-32, 34, 36, 38, 41-46 stand withdrawn. These claims are *method claims drawn to a method of making an apparatus along the lines of the considered claims*. Pursuant to MPEP § 821.04 and *In re Ochiai*, 71 F.3d 1565, 37 USPQ2d 1127 (Fed. Cir. 1995), it is respectfully requested that these claims be rejoined and considered, since MPEP § 821.04 states that "when a product claim is found allowable, applicant may present claims directed to the process of making and/or using the patentable product."

In view of the above, Applicants note that of the withdrawn claims, claims 9, 21, 27, 33, 34 and 41-46 ultimately depend from claims 1 or 13. Applicants respectfully request that

these claims be rejoined and allowed at least due to their dependency from claims 1 and 13, claims that are allowable.

As to the remaining claims, Applicants submit that these claims are allowable for at least the reasons that make the claims under consideration allowable. Applicants respectfully submit that no significant burden is placed on the PTO by rejoining and examining all the withdrawn claims. Indeed, many of the withdrawn claims explicitly recite recitations consistent with the above arguments. (For example, claims 10 and 22 affirmatively recite that the membrane is not sintered.)

Conclusion

Applicants believe that the present application is in condition for allowance, and favorable reconsideration is requested.

If Applicants have not accounted for any fees required by this Amendment, the Commissioner is hereby authorized to charge to our Deposit Account No. 19-0741. If Applicants have not accounted for a required extension of time under 37 C.F.R. § 1.136, that extension is requested and the corresponding fee should be charged to our Deposit Account.

Examiner Cole is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

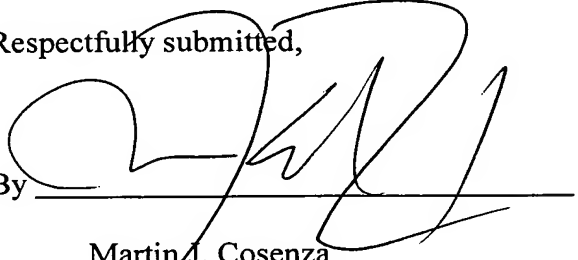
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Respectfully submitted,

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